What is claimed is:

1. A communication unit for sending transmit data comprising:

a receiver arranged to recover input data transmitted at a first transfer rate in response to a first transmit clock signal; and

a transmitter arranged to transmit the transmit data at a second transfer rate in response to a second transmit clock signal coordinated with the first transmit clock signal, said second transmit clock signal comprising a frequency defined at least in part by a predetermined relationship between the first transfer rate and second transfer rate.

2. The unit of claim 1 wherein the predetermined relationship comprises a ratio of the first transfer rate and second transfer rate.

3. The unit of claim 1 wherein the input data comprises clock information about the first transmit clock signal, wherein the receiver generates a reconstructed first transmit clock signal in response to the clock information and wherein the transmitter

generates the second transmit clock signal in response to the reconstructed first transmit clock signal.

4. The unit of claim 3 wherein the transmitter comprises:

a clock generator arranged to generate the reconstructed first transmit clock signal with a first frequency in response to the clock information;

a frequency divider arranged to alter the first frequency by a ratio of the first transfer rate and the second transfer rate to generate a rate-altered clock signal;

a buffer memory arranged to write the transmit data to the buffer memory in response to the rate-altered clock signal and arranged to read the transmit data from the buffer memory in response to the second transmit clock signal;

an output unit arranged to place the transmit data into a form suitable for transmission in response to a sample clock signal operating at a sample rate; and

a feedback circuit arranged to generate the second transmit clock signal by reducing errors of the

rate-altered clock signal and to generate phase information in response to the phase difference between the second transmit clock signal and the sample clock signal to enable interpolation of the transmit data into a form suitable for the output unit.

5. The unit of claim 4 wherein the sample clock signal is unsynchronized with respect to the second transmit clock signal.

6. The unit of claim 5 wherein the output unit samples the transmit data in response to the sample clock signal.

7. The unit of claim 6 wherein the feedback circuit comprises:

a phase detector arranged to generate a phase difference signal representing the phase difference between the rate-altered clock signal and the second transmit clock signal in response to the sample clock signal;

a filter arranged to filter the phase difference signal in response to the second transmit clock signal and the sample clock signal; and

a numerically-controlled oscillator arranged to generate the second transmit clock signal and the phase information in response to the phase difference signal and the sample clock signal.

8. The unit of claim 7 wherein the phase information enables interpolation of the transmit data from the domain of the second transmit clock signal to the domain of the sample clock signal so that the relationship between the first transfer rate and the sample rate is substantially arbitrary.

9. The unit of claim 8 wherein the feedback circuit is responsive to the sample clock signal.

10. The unit of claim 9 wherein the output unit comprises a digital to analog converter.

11. The unit of claim 4 wherein the output unit comprises a digital to analog converter.

12. The unit of claim 4 wherein the feedback circuit comprises a phase locked loop.

13. The unit of claim 12 wherein the phase locked loop comprises:

a phase detector arranged to generate a phase difference signal representing the phase difference between the rate-altered clock signal and the second transmit clock signal;

a filter arranged to filter the phase difference signal; and

a numerically-controlled oscillator arranged to generate the second transmit clock signal and the phase information in response to the phase difference signal.

14. The unit of claim 13 wherein the filter comprises:

a pre-filter arranged to operate at a first speed; and

a loop filter arranged to operate at a second speed less than the first speed.

15. The unit of claim 4 wherein the buffer memory comprises a first in first out memory.

16. The unit of claim 4 wherein the average repetition rate of the rate-altered clock signal is substantially the same as the first frequency altered by

a ratio of the first transfer rate and the second transfer rate.

17. The unit of claim 4 wherein the feedback circuit decreases the repetition rate of the second transmit clock signal if the repetition rate of the rate-altered clock signal is less than the repetition rate of the second transmit clock signal and wherein the feedback circuit increases the repetition rate of the second transmit clock signal if the repetition rate of the rate-altered clock signal is greater than the repetition rate of the second transmit clock signal.

18. The unit of claim 1 wherein the first transfer rate is greater than or equal to the second transfer rate.

19. The unit of claim 1 wherein the first transfer rate is less than the second transfer rate.

20. A method of sending transmit data comprising:

recovering input data transmitted at a first transfer rate in response to a first transmit clock signal;

generating a second transmit clock signal coordinated with the first transmit clock signal; and

transmitting the transmit data in response to the second transmit clock signal at a second transfer rate, said second transmit clock signal comprising a frequency defined at least in part by a predetermined relationship between the first transfer rate and second transfer rate.

21. The method of claim 20 wherein the predetermined relationship comprises a ratio of the first transfer rate and second transfer rate.

22. The method of claim 20 wherein the input data comprises clock information about the first transmit clock signal, wherein said recovering input data comprises generating a reconstructed first transmit clock signal in response to the clock information and wherein said generating a second transmit clock signal comprises generating the second transmit clock in response to the reconstructed first transmit clock signal.

23. The method of claim 22 wherein said transmitting the transmit data comprises:

generating the reconstructed first transmit clock signal with a first frequency in response to the clock information;

altering the first frequency by a ratio of the first transfer rate and the second transfer rate to generate a rate-altered clock signal;

generating the second transmit clock signal by reducing errors of the rate-altered clock signal;

storing the transmit data in response to the rate-altered clock signal;

reading the stored transmit data in response to the second transmit clock signal;

placing the transmit data into a form suitable for transmission in response to a sample clock signal operating at a sample rate; and

generating phase information in response to the phase difference between the second transmit clock signal and the sample clock signal to enable

interpolation of the transmit data into a form suitable for transmission.

24. The method of claim 23 wherein the sample clock signal is unsynchronized with respect to the second transmit clock signal.

25. The method of claim 24 wherein said placing the transmit data into a form suitable for transmission comprises sampling the transmit data in response to the sample clock signal.

26. The method of claim 25 wherein said generating the second transmit clock signal comprises:

generating a phase difference signal representing the phase difference between the rate-altered clock signal and the second transmit clock signal in response to the sample clock signal;

filtering the phase difference signal in response to the second transmit clock signal and the sample clock signal; and

generating the second transmit clock signal and the phase information in response to the phase difference signal and the sample clock signal.

27. The method of claim 26 wherein the phase information enables interpolation of the transmit data from the domain of the second transmit clock signal to the domain of the sample clock signal so that the relationship between the first transfer rate and the sample rate is substantially arbitrary.

28. The method of claim 27 wherein said generating the second transmit clock signal comprises generating the second transmit clock signal in response to the sample clock signal.

29. The method of claim 28 wherein said placing the transmit data into a form suitable for transmission comprises converting the transmit data from digital to analog form.

30. The method of claim 23 wherein placing the transmit data into a form suitable for transmission comprises converting the transmit data from digital to analog form.

31. The method of claim 23 wherein said generating the second transmit clock signal comprises generating

the second transmit clock signal by using a phase locked loop.

32. The method of claim 31 wherein said using a phase locked loop comprises:

generating a phase difference signal representing the phase difference between the rate-altered clock signal and the second transmit clock signal;

filtering the phase difference signal; and

generating the second transmit clock signal and the phase information in response to the phase difference signal.

33. The method of claim 32 wherein said filtering comprises:

pre-filtering at a first speed; and

loop filtering at a second speed less than the first speed.

34. The method of claim 23 wherein said storing and reading comprise reading the transmit data in the order of the storing.

35. The method of claim 23 wherein the average repetition rate of the rate-altered clock signal is substantially the same as the first frequency altered by a ratio of the first transfer rate and the second transfer rate.

36. The method of claim 23 wherein said generating the second transmit clock signal comprises:

decreasing the repetition rate of the second transmit clock signal if the repetition rate of the rate-altered clock signal is less than the repetition rate of the second transmit clock signal; and

increasing the repetition rate of the second transmit clock signal if the repetition rate of the rate-altered clock signal is greater than the repetition rate of the second transmit clock signal.

37. The method of claim 20 wherein the first transfer rate is greater than or equal to the second transfer rate.

38. The method of claim 20 wherein the first transfer rate is less than the second transfer rate.